Prescribing for the Older Patient

Introduction

Demographic changes mean that prescribing for the elderly is becoming an increasingly important aspect of clinical care. In the UK, 45% of prescriptions are dispensed to patients over the age of 65.\(^1\)

Older patients have a higher prevalence of chronic and multiple illness and physiological changes associated with ageing may masquerade as illness. They are thus more likely to be prescribed medication by their doctors and to take multiple agents.\(^2\) This puts them at a higher risk of suffering adverse drug reactions (ADRs), adverse drug events and drug-drug interactions.\(^3\)

Pharmacokinetics and pharmacodynamics may be altered by normal ageing or disease, further heightening the risk of ADRs.\(^4\) It is also worth remembering that patients aged >65-70 years are rarely enrolled in clinical trials and it cannot be assumed that evidence derived from studies in younger patients can be applied to their age group.

A list of agents to be avoided or used with extreme caution in the older patient can be accessed via Reference 5.\(^5\)

Various strategies have recently been developed to identify older patients at risk from adverse effects and to reduce the risk of initiating drugs likely to cause adverse events - eg Screening Tool of Older Person's Prescriptions (STOPP) and Screening Tool to Alert doctors to Right Treatment (START).\(^6\)

STOPP comprises 65 clinically significant criteria for potentially inappropriate prescribing in older people. Each criterion is accompanied by a concise explanation as to why the prescribing practice is potentially inappropriate.

START consists of 22 evidence-based prescribing indicators for commonly encountered diseases in older people.

One study of prescriptions issued to a population of Irish patients over the age of 70, using 30 STOPP indicators, found that 36% were deemed potentially inappropriate.\(^7\)

The responsibility for avoiding adverse drug reactions does not rest entirely with primary care. A Swedish study showed a significant drop in such events when geriatric patients due to be discharged from hospital were handed a formal Medication Report. This is a structured and detailed list of the patient's medication changes during the hospital stay and is part of the information that is given at discharge to the patient, the GP and the community nurse.\(^8\)

Prescribe cautiously

The above factors should promote a different and more cautious approach when prescribing medication for an older patient. Careful attention needs to be paid to distinguishing between symptoms due to normal ageing and those due to specific, treatable diagnoses. Once a decision to prescribe has been made, selection of an appropriate agent is important. There are a number of agents which expert consensus and repeated trials have shown to be associated with a much higher risk of adverse events in the older recipient. Despite this, community surveys of the prescription of such agents show a relatively high rate of their prescription to older patients of around 16-18% per patient year for ambulatory, community-based older patients.\(^9, 10\)
One study in the Netherlands found a prevalence rate of ADR-related acute hospital admissions of 9.5% for patients over the age of 75. The incidence rate of ADR-related hospitalisations per drug group was highest for antithrombotics and anti-infectives and was relatively low for cardiovascular drugs. Fatality as a direct consequence of the ADR-related admission was 0.31%. In elderly patients 40% of the ADRs causing hospitalisation were judged to be avoidable.\[11\]

Prescribe appropriately

The following rubric is a useful guide to consider when deciding whether or not a particular prescription is appropriate in an older person:

- Balance the potential harm and benefits of a given agent.
- Conduct a regular review of older patients' prescriptions and assess the risk/benefit balance in an ongoing fashion; medicines which appear to have no benefit, or are producing unacceptable adverse effects should be stopped.
- Consider non-pharmacological treatments for common symptoms like dizziness, insomnia and headache.
- Psychological factors such as recent bereavement and social isolation should be considered and addressed before reaching for the prescription pad.
- When prescribing prophylactic medications, consider whether it is appropriate in the context of the whole person and their comorbidities, the risks of taking the medication, the likelihood of compliance and the population from which the original evidence of effectiveness was identified.
- Older patients should not be denied preventative pharmacological agents such as warfarin and statins but their use should be carefully considered.

Use appropriate formulations

Some older patients have swallowing problems which may mean that tablets are not the best form in which to prescribe their treatments. Tablets that remain in the mouth or oesophagus for long periods may cause ulceration. Consider using liquid formulations, or giving explicit advice about taking tablets with plenty of water whilst sitting upright.

Avoid symptomatic prescribing

Take care that you are not prescribing an agent to 'treat' a normal aspect of ageing - for example, alteration in the sleep/waking cycle. Where an older patient presents with new symptoms it is wiser to conduct a thorough assessment and attempt to reach a diagnosis before prescribing. The masking of symptoms may undermine your ability to detect an evolving illness. Symptomatic prescribing in the older patient tends to lead to a vicious cycle of polypharmacy, adverse effects and further prescribing to treat these new 'symptoms'.

Consider the effect of non-prescribed medication

As with younger patients, it is important to recognise that patients may be taking OTC or complementary preparations which could interact with prescribed agents. Another factor to take into account is the use of previously prescribed agents, or even drugs prescribed for someone else. Try to take a full drug history and involve members of the older patient's family if necessary, in order to obtain a true picture of what is actually being taken. Find out what your patient understands about the various medications that they are taking, how they should be taken and how they affect them, before adding in another agent.

Anticipate the pharmacological differences between younger and older patients

**Pharmacodynamics**

- The older patient's central nervous system is often more sensitive to agents such as antipsychotics, opioids, benzodiazepines and anti-Parkinsonian agents.
- Drugs which have toxic gastrointestinal side-effects, such as non-steroidal anti-inflammatory drugs (NSAIDs) and opioids, must be used with caution.
• Particular care must be taken with central nervous system-active drugs that affect balance, wakefulness, motor function and perception in the older patient prone to falls; address the need for prophylactic treatments to make fractures less likely in older patients on medication that makes them prone to falls. [12, 13]
Pharmacokinetics

The most important alteration in drug metabolism in the elderly is a reduction in renal clearance. Drugs may be excreted at a reduced rate, leading to accumulation and adverse events. Particular care must be taken with drugs known to cause nephrotoxicity - eg, NSAIDs, angiotensin-converting enzyme (ACE) inhibitors and aminoglycosides. Renally excreted drugs with a narrow therapeutic index, such as digoxin, should be used cautiously and at low-dose levels; drug levels should be checked if there is a reason to suspect toxicity.

Other pharmacokinetic considerations in older patients include:

- Drug absorption changes little but there may be a significant increase in the absorption of levodopa.
- Bioavailability may be increased for drugs which are extensively metabolised in the liver (eg, propranolol, verapamil and many psychotropics), due to loss of first pass metabolism; interactions can be a problem with multiple therapy, and drugs cleared by the liver should be used with extreme caution in older patients with hepatic impairment.
- The apparent volume of drug distribution is altered in older people due to changes in lean body mass; there may be a reduction in drug distribution volume for some water-soluble drugs (eg, digoxin) and an increase for lipophilic drugs (eg, diazepam).
- Protein binding may be altered but is not usually a problem associated with normal ageing; however, disease which reduces albumin levels is more common in the elderly and should be borne in mind when prescribing heavily protein-bound drugs such as warfarin and sulfonyleureas.
- Long-term use of thiazide diuretics causes only a small change in body potassium in the middle-aged but is a major cause of deficiency in the elderly, due to reduced dietary intake.

Adverse drug reactions in older patients

ADRs may present in nebulous and nonspecific ways in older patients.

- Confusion can be caused by virtually any drug.
- Constipation, dizziness, dry mouth, and blurred vision are other common side-effects in older patients.
- Falls are associated with a poor prognosis in older patients and are often associated with medication. A systematic review found an increased incidence of falls in older patients taking benzodiazepines, antidepressants and antipsychotics. A weaker link was identified with antiepileptics and drugs that lowered blood pressure.[14]
- When assessing symptoms in an older patient, take their medication into account and question whether or not this might be iatrogenic disease.

Side-effects of specific drug classes

NSAIDs

- Gastrointestinal bleeding is more common and has more serious consequences in older patients.
- NSAIDs can worsen heart failure or aggravate impaired renal function. These effects can be worse in elderly patients.
- They are best avoided, if possible, for simple pain relief in osteoarthritis (OA), etc; paracetamol should be tried instead and, if this is insufficient, try a low-dose NSAID in addition, with proton-pump inhibitor (PPI) or misoprostol cover, or substitute a low-dose opioid.
- Consider complementary therapies such as acupuncture to help with pain management.
- **The co-prescription of NSAIDs and ACE inhibitors in older patients can be a recipe for disaster;** their combined deleterious effect on renal cortical perfusion and function can lead to significant renal impairment in the older patient.

Hypnotics

- Hypnotics with long half-lives are a significant problem and can cause daytime drowsiness, unsteadiness from impaired balance and confusion.
- Short-acting ones may also be a problem and should only be used for short periods if essential.
- In patients prone to falls or dizziness avoid using these agents unless absolutely necessary.
- Where benzodiazepines are used to help patients overcome a crisis or transitional period, great care must be taken that they be given only for short periods, to avoid the danger of dependence and addiction.
It is much better to take a good history of an older patient's sleep habits and suggest sleep hygiene and non-pharmaceutical measures to overcome insomnia, than to prescribe drugs, which at best will be a temporary solution.

Diuretics
- This class of drugs is often overused in the elderly and should not be used for chronic treatment of gravitational oedema where measures such as leg-raising, increased walking/leg exercises and graduated compression stockings are often sufficient.
- Where diuretics are used to treat hypertension or cardiac failure, they should be reviewed regularly, along with an assessment of the patient's state of hydration and U&Es if necessary.
- Withdrawal of diuretics requires careful monitoring and consideration of potential contra-indications to withdrawal and can be difficult to achieve. For example, patients with well-controlled heart failure can develop troublesome symptoms and blood pressure can rise significantly in hypertensive patients.

Digoxin
In the very elderly, the daily maintenance dose should be 125 micrograms. In the renally impaired, the dose should be 62.5 micrograms. 250 micrograms/day are likely to cause toxicity.

Drugs that cause bone marrow suppression
Drugs such as co-trimoxazole and chloramphenicol should only be used if there is no suitable alternative.

Anticoagulants and antiplatelet drugs
- Beware of gastrointestinal bleeding and contra-indications such as peptic ulceration which may have occurred a long time ago and been forgotten about.
- For warfarin, prescribe only when patients have a full understanding of why the drug is being taken, its dangers, correct daily dosing/timing and the importance of regular INR monitoring.

Antidepressants
- Tricyclic antidepressants commonly cause postural hypotension and confusion in the older patient; they should be used carefully.
- Serotonergic medications used for depression may cause serotonin syndrome and agitation in the older patient; this can be difficult to distinguish from some of the symptoms of depression.

Diabetic medication
- Long-acting oral hypoglycaemics such as chlorpropamide and glibenclamide should be avoided as there is a significant risk of hypoglycaemia when these agents are used in the older patient.
- Tight diabetic control must be balanced against potentially catastrophic events precipitated by hypoglycaemia, particularly in those who live alone, have a poor understanding of diabetes self-management, or who experience few warning symptoms of hypoglycaemia.

A rubric for sensible prescribing in older patients
- **Is it needed?** Consider this carefully, weighing up the pros, cons and evidence base in the context of the older patient, their medical problems, lifestyle and resources to cope with taking a drug.
- **Limit the range of drugs you use in older patients:** it's a good idea to have a small formulary for older patients and to be aware of the indications, contra-indications and potential side-effects of these drugs in this group.
- **Start low, go slow:** initial dosage should be carefully considered and usually about half of the normal adult dose. Dose titration should be cautious and carried out in small increments, watching out for side-effects.
- **Keep it simple:** use drug regimens with the lowest number of different agents and with dosing intervals of once or twice daily. Avoid complicated or multiple dosing regimens where possible. Avoid polypharmacy. Remember that evidence from trials and advice in guidelines may not be directly applicable to the older patient and that balancing of holistic considerations with an evidence-based approach is a good way to proceed.
- **Make it clear**: avoid imprecise prescribing such as 'as directed', providing full dose, frequency and route, on first and repeat prescriptions. Where necessary, use dosette boxes or other aids to help the patient take the medication as it is intended.
- **Review regularly**: take care to review medication after it has been started and assess whether or not it should be continued long-term. An Irish study found that the main contributors to potentially inappropriate prescribing were NSAIDs taken for more than three months, PPIs prescribed at maximum strength for more than eight weeks and long-acting benzodiazepines given for longer than one month.[7] Make sure systems are in place to bring the need for review to the prescriber's attention at appropriate intervals. Encourage patients to dispose of old, unused medication via their GP or pharmacist.
- **Use teams and support**: interdisciplinary approaches to prescribing, dispensing and monitoring of medicines are particularly useful in older patients. Use your colleagues to help you achieve the best for your patients and try not to practise in isolation. There is good evidence that involvement of a clinical pharmacist in the review of elderly patients' medication improves safety and reduces costs in a community setting.[10]

### Further reading & references

- **Spinewine A et al.**: Appropriateness of use of medicines in elderly inpatients: qualitative study; BMJ; doi:10.1136/bmj.38551.410012.06 (published 10 August 2005) [Full Text]
- **Goulding M**: Inappropriate medication prescribing for elderly ambulatory care patients.; Arch Intern Med 2004 Feb 9;164(3):305-12. [abstract]
- **Better care for older people; General Medical Council (2014)**
- **Managing medicines in care homes; NICE Quality Standards, March 2015**
- **Goulding M**: Inappropriate medication prescribing for elderly ambulatory care patients.; Arch Intern Med 2004 Feb 9;164(3):305-12. [abstract]
- **Better care for older people; General Medical Council (2014)**
- **Managing medicines in care homes; NICE Quality Standards, March 2015**

2. British National Formulary

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